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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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| EXAMINER | |
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| DAVIS,M | |
| **ART UNIT** | **PAPER NUMBER** |
| 1642 | 17 |

**DATE MAILED:** 08/30/00

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

| Application No. | Applicant(s) | |
|---|---|---|
| 09/030,606 | | |
| Examiner | Group Art Unit | |
| | 1642 | |

*—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 (MONTH(S)) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

**Status**

☑ Responsive to communication(s) filed on 06/12/00.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 1 1; 453 O.G. 213.

**Disposition of Claims**

☑ Claim(s) 23-46 is/are pending in the application.

Of the above claim(s)_____ is/are withdrawn from consideration.

☐ Claim(s)_____ is/are allowed.

☑ Claim(s) 23-46 is/are rejected.

☐ Claim(s)_____ is/are objected to.

☐ Claim(s)_____ are subject to restriction or election requirement.

**Application Papers**

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The proposed drawing correction, filed on_____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on_____ is/are objected to by the Examiner.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119 (a)-(d)**

☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 11 9(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number)_____.

☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

*Certified copies not received:_____.

**Attachment(s)**

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s)._____

☐ Interview Summary, PTO-413

☐ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other_____

**Office Action Summary**

Effective February 7, 1998, the Group Art Unit location has been changed, and the examiner of the application has been changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Minh-Tam Davis, Group Art Unit 1642.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Applicant cancels claims 8, 9 and adds new claims 23-46 which are related to claims 8, 9 and are not new matter.

Accordingly, claims 23-46 are being examined.

The following are the remaining rejections.

**REJECTION UNDER 35 USC 112, FIRST PARAGRAPH, NEW MATTER**

Claims 23-34 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 23-34 are drawn to a method for detecting prostate cancer by contacting a biological sample with at least two oligonucleotide primers in a polymerase chain reaction, wherein at least one of the oligonucleotide primers is specific for SEQ ID Nos: 110, 111, 115,

173-175, 177, 223, or 224, or complement thereof, and wherein the biological sample is blood or serum.

The specification does not disclose nor contemplates a method for detecting prostate cancer by contacting a biological sample with at least two oligonucleotide primers in a polymerase chain reaction, wherein at least one of the oligonucleotide primer is specific for SEQ ID Nos: 110, 111, 115, 173-175, 177, 223, or 224, or complement thereof, and wherein the biological sample is blood or semen. In other words, the limitations of using primers specific for complements of the claimed polynucleotides, and detection of the claimed nucleotide sequences in blood or semen are not disclosed nor contemplated in the specification. In Paper No. 13, Applicant points to support for the limitation "blood or semen" on page 20 lines 7-9, however, a review of the cited support does not reveal any mention of biological samples. Further, a review of the specification did not reveal support for the limitation of "complements thereof" drawn to detection assays. The subject matter claimed in claims 23-34 broadens the scope of the invention as originally disclosed in the specification.

**REJECTION UNDER 35 USC 101, UTILITY, NEW REJECTION**

35 U.S.C. § 101 reads as follows:

> "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title".

Claims 23-46 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific asserted utility or a well established utility.

Claims 23-46 are drawn to a method for detecting prostate cancer using oligonucleotide primers specific for the claimed nucleotide sequences of SEQ ID Nos: 110, 111, 115, 173-175, 177, 223, or 224, or complement thereof.

The disclosed utilities for SEQ ID Nos: 110, 111, 115, 173-175, 177, 223, or 224, or an amino acid sequence encoded by SEQ ID Nos: 110, 111, 115, 173-175, 177, 223, or 224 comprise making antibodies specific for the claimed polypeptide, detecting and treating prostate cancer. The asserted utilities for SEQ ID Nos: 110, 111, 115, 173-175, 177, 223, or 224, or an amino acid sequence encoded by SEQ ID Nos: 110, 111, 115, 173-175, 177, 223, or 224, such as production of and screening of antibodies apply to many unrelated polypeptide structures sequences. Therefore the asserted utilities are not considered "specific" utilities, i.e. they are not specific to SEQ ID Nos: 110, 111, 115, 173-175, 177, 223, or 224. The specification discloses that mRNA of SEQ ID Nos: 110, 111, 115, 173-175, 177, 223, or 224 is present at high levels in both tumorous and normal prostatic tissue. The expression of SEQ ID Nos: 110, 111, 115, 173-175, 177, 223, or 224 are either prostate specific or at significantly elevated levels in prostate. The specification further discloses the claimed sequences could be used for detecting prostate cancer, or treating prostate cancer by administrating an "immunogenic portion" of a polypeptide encoded by the claimed polynucleotides, or administrating an antibody specific for a polypeptide encoded by the claimed polynucleotides. The specification does not indicates that the sequences disclosed are expressed at higher levels in patients with prostate cancer, as compared to normal human. The specification lacks specific utility because the claimed polynucleotides are organ specific, i.e. specific to prostate, and thus their utilities such as treating or detecting prostate cancer are shared by numerous other unrelated prostate specific molecules. The specification essentially gives an invitation to

No only true of 223+ 224

experiment wherein the artisan is invited to elaborate a functional use for the disclosed nucleic acids. Because the claimed invention is not supported by a specific asserted utility for the reasons set forth, credibility of any utility cannot be assessed.

**REJECTION UNDER 35 USC 112, FIRST PARAGRAPH, WRITTEN DESCRIPTION, NEW REJECTION**

The instant specification does not contain a written description of the invention in such full, clear, concise, and exact terms or in sufficient detail that one skilled in the art can reasonably conclude that applicant had possession of the claimed invention at the time of filing.

Claims 23-46 are drawn to a method for detecting prostate cancer using oligonucleotide primers specific for the claimed nucleotide sequences of SEQ ID Nos: 110, 111, 115, 173-175, 177, 223, or 224, or complement thereof.

The specification discloses an isolated cDNA sequence of SEQ ID Nos: 110, 111, 115, 173-175, 177, 223, or 224. Except for SEQ ID Nos: 110, 111, which are full length cDNA sequences (specification, p.25, line 26-27), the other claimed sequences deemed to be incomplete cDNAs. Because the cDNAs that correspond to the SEQ ID Nos: 115, 173-175, 177, 223, or 224 mentioned in the claims are not full-length, a sequence prepared from undefined parts of a cDNA clone will not comprise the entire coding region of any particular gene. Nor is it clear that the partial sequence is even in frame to encode a polypeptide. The claims, as written, however, encompass a method of detecting prostate cancer by detecting polynucleotides which vary substantially in length and also in nucleotide composition. The broadly claimed genus encompasses SEQ ID Nos: 115, 173-175, 177, 223, or 224, as well as polynucleotides comprising at least 10 contiguous nucleotides of a DNA which as broadly claimed are clearly meant to encompass the naturally occurring genes from which the claimed cDNAs are derived.

The instant disclosure of single species of each of the nucleic acids does not adequately describe the scope of the claimed genus, which encompasses a substantial variety of subgenera including full-length genes. a description of a genus of cDNAs may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus or of a recitation of structural features common to members of the genus, which features constitute a substantial portion of the genus. *Regents of the University of California v. Eli Lilly & Co.*, 119 F3d 1559, 1569, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997). The specification discloses only a single common structural feature, i.e. SEQ ID Nos: 115, 173-175, 177, 223, or 224, which are shared by members of the claimed genus. Since the claimed genus encompasses genes yet to be discovered, the disclosed structural feature does not constitute the claimed genus. In addition, a partial cDNA that did not include a disclosure of any open reading frame (ORF) of which it would be a part, would not be representative of the genus of cDNAs because no information regarding the coding capacity of any cDNA molecule would be disclosed. Therefore, the disclosure of SEQ ID Nos: 115, 173-175, 177, 223, or 224 does not provide an adequate description of the claimed genus. Only a method of detecting prostate cancer, by detecting a DNA molecule consisting of SEQ ID Nos: 115, 173-175, 177, 223, or 224, but not the full breadth of the claims meet the written description provisions of 35 USC 112, first paragraph.

One of skill in the art would reasonably conclude that applicant was not in possession of the genus DNAs, which comprises SEQ ID Nos: 115, 173-175, 177, 223, or 224.

The specification further fails to identify and describe the 5' and 3' regulatory regions and untranslated regions essential to the function of the claimed invention, which are required since the claimed invention currently encompasses detection of the gene comprising SEQ ID Nos: 110, 111, 115, 173-175, 177, 223, or 224, or complement

thereof. The art indicates that the structures of genes with naturally occurring regulatory elements and untranslated regions is empirically determined (Harris et al. J. of The Am Society of Nephrology 6:1125-33, 1995; Ahn et al. Nature Genetics 3(4):283-91, 1993; and Cawthon et al. Genomics 9(3):446-60, 1991). Therefore, the structure of these elements is not conventional in the art and skilled in the art would therefore not recognize from the disclosure that applciant was in possession of the genus of nucleic acid, including genes, comprising SEQ ID Nos: 110, 111, 115, 173-175, 177, 223, or 224, or complement thereof.

Since the disclosure fails to describe the common attributes or characteristics that identify members of the genus, and because the genus is highly variant, the disclosure of specific nucleotide sequences and the ability to screen, is insufficient to describe the genus. One of skill in the art would reasonably conclude that the disclosure fails to provide a representative number of species to describe and enable the genus as broadly claimed.

**REJECTION UNDER 35 USC 112, FIRST PARAGRAPH, ENABLEMENT**

The following is a quotation of the first paragraph of 35 U.S.C. 112:

"The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention."

1. Claims 23-46 are rejected under 35 U.S.C. 112, first paragraph.

Specifically, since the claimed invention is not supported by a well established utility and by a clear written description, for the reasons set forth in the rejection under 35

USC 101 and 112, first paragraph above, one skilled in the art clearly would not know how to use the claimed invention.

2. Claims 23-46 are further rejected under 35 U.S.C. 112, first paragraph for lack of enablement for a method for detecting prostate cancer by contacting a sample with at least two oligonucleotide primers in a polymerase chain reaction, wherein at least one of the oligonucleotide primer is specific for SEQ ID Nos: 110, 111, 115, 173-175, 177, 223, or 224, or complement thereof, and detecting a DNA sequence that amplifies in the presence of the oligonucleotide primers.

The claims encompass a method of detecting prostate cancer by detecting a variety of species including full-length cDNAs, and genes. Since only one oligonucleotide primer is specific for the claimed nucleotide sequence, the other oligonucleotide primer could be from any DNA region adjacent to and outside of the claimed nucleotide sequence, e.g. a primer from another gene, wherein the DNA sequence in between the two primers encompasses several genes. Clearly, it would be expected that a substantial number of the detected DNA molecules encompassed by the claims **would not** share either structural or functional properties with the claimed polynucleotides, especially if the oligonucleotide primer specific for the claimed nucleotide sequence is located near the ends of the claimed nucleotide sequence.

Furthermore, a complement of the claimed nucleotide sequences could be any DNA sequence, provided a portion of said DNA sequence is complementary to the claimed nucleotide sequence. Since the term complement is not defined in the specification, the claims as written clearly encompass both partial and full complements wherein the partial complement could comprise as little as a single complementary nucleic acid residue. Thus the claimed method would detect a substantial number of DNA molecules which **would not** be expected to share either structural or functional properties with the claimed polynucleotides.

The specification provides insufficient guidance with regard to these issues and provides no working examples which would provide guidance to one skilled in the art on how to use the broadly claimed species. For the above reasons, undue experimentation would be required to practice the claimed invention.

3. New claims 23-34 are rejected under 35 USC 112, first paragraph pertaining to lack of enablement for method of diagnosis of prostate cancer. This rejection has been set forth for the canceled claims 8, 9 for reasons already of record in paper No.10.

Applicant argues as follows:

It is well known in the art that prostate cells are not found in the blood of normal healthy individuals. However, when an individual is inflicted with prostate cancer, the prostate tumor is able to break through the membrane surrounding the prostate, thereby permitting both normal and prostate and prostate tumor cells to enter the capillaries and get into the blood stream. Thus detection of the claimed nucleotide sequences would be indicative of the presence of prostate cancer.

Applicant's arguments set forth in paper No.13 have been considered but are not deemed to be persuasive for the following reasons:

The arguments are not substantiated with any references. Furthermore, the new claims add the limitation of detection of the claimed nucleotide sequences in a blood or semen sample, which is not found in the specification.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh-Tam B. Davis whose telephone number is (703) 305-2008. The examiner can normally be reached on Monday-Friday from 9:30am to 3:30pm, except on Wesnesday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tony Caputa, can be reached on (703) 308-3995. The fax phone number for this Group is (703) 308-4227.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0916.

Minh-Tam B. Davis

August 15, 2000

SUSAN UNGAR, PH.D
PRIMARY EXAMINER